

WHAT IS CLAIMED IS:

1. A circuit board device having a power supply region and a ground region that are adjacent, wherein, when at least one region of the power supply region and the ground region that are adjacent has a shape that may be considered a track, a terminal element having an impedance that is substantially equal to a characteristic impedance between said regions is connected between the power supply region and the ground region at a terminal portion vicinity of said at least one region.

2. The circuit board device according to claim 1, further comprising a dielectric layer, wherein the power supply region and the ground region that are adjacent are formed in different layers with the dielectric layer interposed therebetween and substantially oppose one another and overlap.

3. The circuit board device according to claim 1, further comprising a circuit, which has a plurality of via holes that forms a parallel circuit, formed adjacent to the terminal portion, and the terminal element is connected between the layers via the parallel circuit.

4. The circuit board device according to claim 1, wherein the power supply region and the ground region that are adjacent are formed in the same layer.

5. The circuit board device according to claim 1, wherein the terminal element includes a capacitor.

6. The circuit board device according to claim 1, wherein the terminal element includes a resistor and a capacitor which are series-connected.

7. The circuit board device according to claim 1, wherein the region that may be considered a track is a shape having a length that is larger than a width.

8. The circuit board device according to claim 1, wherein an impedance Z_r of the terminal element is set such that a characteristic impedance Z_e and the impedance Z_r of the terminal element satisfy a relationship $0.1 \leq Z_r/Z_e \leq 10$.

9. The circuit board device according to claim 6, wherein a relationship between a characteristic impedance Z_e and a resistance R of the resistor satisfies $(Z_e/5) \leq R \leq (5 \cdot Z_e)$, and a capacity C of the capacitor satisfies $C \geq 1/(10\pi \cdot f_{\min} \cdot Z_e)$, where f_{\min} is a lower limit of a radiation noise frequency of a reduction target.

10. A design support device for a circuit board device having a power supply region and a ground region, the design support device

comprising:

a design information database for storing design information of the circuit board device;

extraction means for extracting, on the basis of the design information database, a region that may be considered a track, said region being at least one region of the power supply region and the ground region that are adjacent; and

calculation means for determining a characteristic impedance between said at least one region that may be considered a track and another region.

11. The design support device according to claim 10, further comprising:

a parts information database for storing parts information of a terminal element for connection between the power supply region and the ground region, at a terminal portion vicinity of said at least one region that may be considered a track; and

search means for searching from the parts information database a terminal element having an impedance that is substantially equal to the characteristic impedance calculated by the calculation means.

12. The design support device of claim 10, wherein the extraction means includes a conversion means for extracting a region in which the power supply region and the ground region are formed in different layers

with a dielectric layer interposed therebetween, oppose one another and overlap, and for converting the extracted region into a region having a simplified shape, said extraction means extracting from the region having a simplified shape a region that may be considered a track.

13. The design support device of claim 11, wherein the terminal element includes a resistor and a capacitor which are series-connected, and the search means searches for a resistor in which a relationship between the characteristic impedance Z_e and a resistance R satisfies $(Z_e/5) \leq R \leq (5 \cdot Z_e)$, and searches for a capacitor in which a capacity C satisfies $C \geq 1/(10\pi \cdot f_{\min} \cdot Z_e)$, where f_{\min} is a lower limit of a radiation noise frequency of a reduction target.

14. The design support device of claim 13, wherein the search means searches for a resistor and a capacitor that satisfy $L_0 \leq 5 \cdot Z/(2\pi \cdot f_{\max})$, where L_0 is an inductance constituent present within the resistor, capacitor, and a connection pattern connecting the resistor to the capacitor, and f_{\max} is a frequency upper limit of radiation noise of a reduction object.